

AK

|                               |                        |                     |  |
|-------------------------------|------------------------|---------------------|--|
| <b>Notice of Allowability</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                               | 10/710,669             | WENG, YI-TANG       |  |
|                               | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                               | David Nhu              | 2818                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/28/04.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ The drawings filed on 28 July 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>01</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                         | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |



### REASONS FOR ALLOWANCE

1. Claims 1-12 are allowed.
2. The following is an examiner's statement of reasons for allowance: None of the references of record teaches or suggests as cited in claims 1, 7: electroplating copper in said recessed trench area to form said copper circuit pattern including a to-be-Au (gold)-plating area that has a larger surface area as the terminal of said copper circuit pattern; stripping said first patterned photoresist layer; forming a second patterned photoresist layer exposing said to-be-Au-plating area of said copper circuit pattern; using said second patterned photoresist layer as an etching hard mask, etching away said thin copper base layer exposed by said second patterned photoresist layer and said to-be-Au-plating area; forming a third patterned photoresist layer on said second patterned photoresist layer to mend a recess under said second patterned photoresist layer; using said third patterned photoresist layer as an electroplating mask, electroplating a metal layer onto said copper circuit pattern in said to-be-Au-plating area; stripping said second and third patterned photoresist layers; and etching away remaining said thin copper base layer being exposed after stripping said second and third patterned photoresist layers ( as cited in claim 1); ; forming a second patterned photoresist layer exposing said to-be-Au-plating area of said copper circuit pattern; using said second patterned photoresist layer as an etching hard mask, etching away said thin copper base layer exposed by said second patterned photoresist layer and said to-be-Au-plating area; stripping said second patterned photoresist layer; forming a third patterned photoresist layer on said on said carrier plate to expose said to-be-Au-plating area of said copper circuit pattern; using said third patterned photoresist layer as an electroplating mask, electroplating a metal layer onto said

Art Unit: 2818

to-be-Au-plating area; stripping said third photoresist layer; and etching away remaining said copper seed layer being exposed after stripping said third patterned photoresist layer ( as cited in claim 7);

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### CONCLUSION

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Hsu et al (6,576,540 B2): Method for Fabricating Substrate within a Ni/Au Structure Electroplated on Electrical Contact Pads.

7. Any inquiry concerning this communication on earlier communications from the examiner should be directed to David Nhu , (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM.

The examiner's supervisor, David Nelms can be reached on (571)272-1787.

*The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.*

*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956*

David Nhu



April 5, 2005

**DAVID NHU**  
**PRIMARY EXAMINER**